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Number Search

Last result list

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Return to result list

Manually driven overhead conveyor for internal use in the clothing industry.

Bibliographic data	Description	Claims	Mosaics	Original document	INPADOC legal status
<div><div>Publication number: EP0338500 (A2)</div><div>Publication date: 1989-10-25</div><div>Inventor(s): GARTNER FRANZ</div><div>Applicant(s): GARTNER FRANZ</div><div>Classification:<div><div>- international: B65G9/00; B65G9/00; (IPC1-7): B65G9/00</div><div>- European: B65G9/00B; B65G9/00P</div></div></div><div>Application number: EP19890106907 19890418</div><div>Priority number(s): DE19883812852 19880418</div></div>					<div><div>Also published as:</div><div><div>EP0338500 (A3)</div><div>EP0338500 (B1)</div><div>DE3812852 (A1)</div><div>GR3005878 (T3)</div></div><div><div>Cited documents:</div><div><div>CH498758 (A)</div><div>EP0297331 (A1)</div><div>DE1249301 (B)</div><div>DE1197388 (B)</div><div>DE1248558 (B)</div></div></div></div>
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Abstract of EP 0338500 (A2)

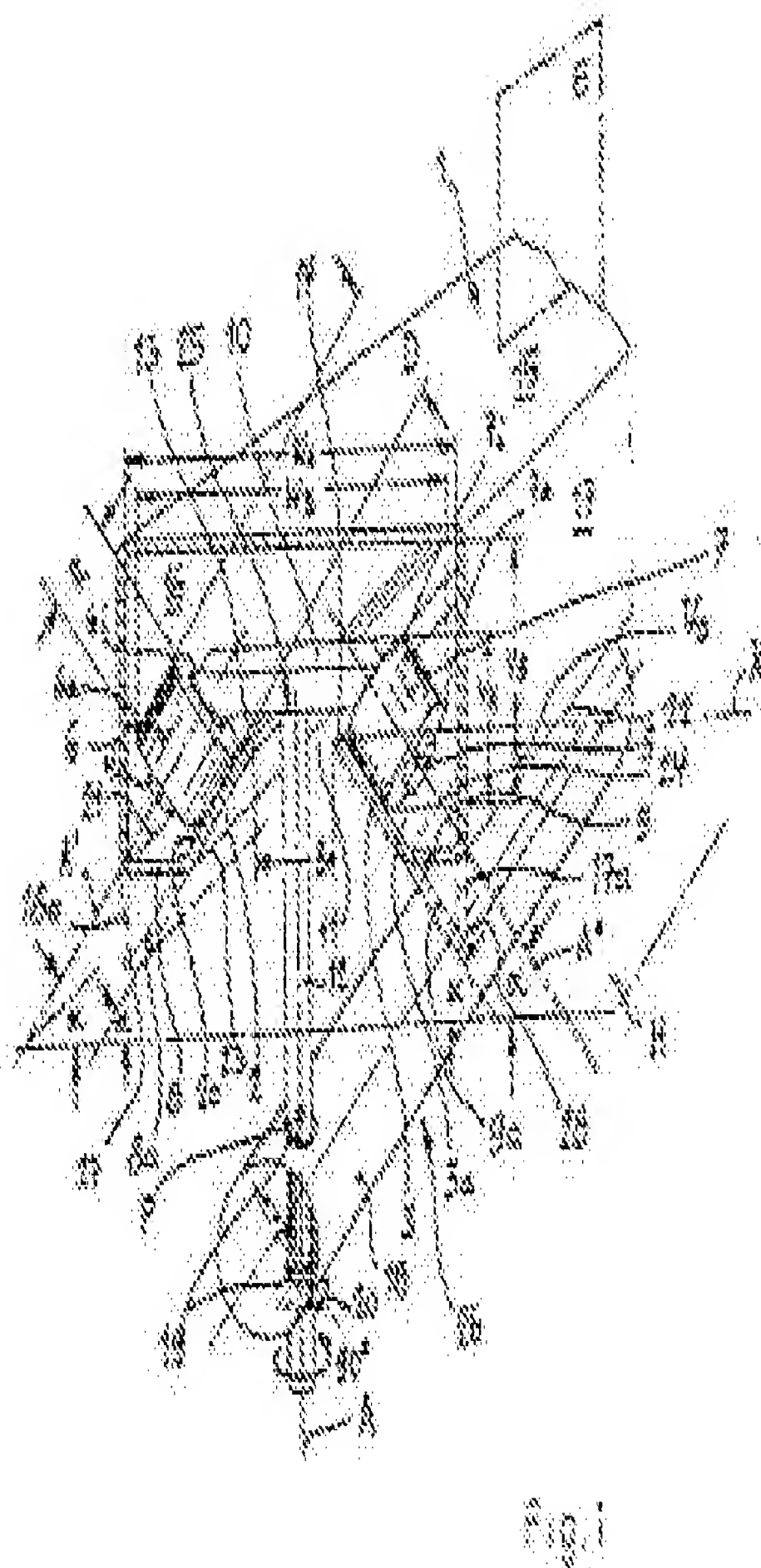


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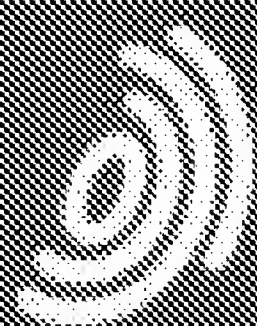
» What is a mosaic?

The invention relates to a manually driven overhead conveyor for internal use in the clothing industry, consisting of an essentially box-shaped guide-rail profile (6) having a profile covering wall (15), two profile side walls (16, 17) and two profile base walls (8, 9) which are arranged adjacent to said side walls at their bottom and at an angle to the vertical longitudinal centre plane (E), these base walls between them forming a slotted opening (11) which runs along the centre, having an axle support (10) which is arranged inside the guide-rail profile and is provided with a pair of guide rollers (6, 7) mounted rotatably on said support, and a supporting element (25) for a supporting carriage (18) for receiving articles to be conveyed, this element being mounted on the support (10) and passing downwards through the slotted opening (11) of the guide-rail profile (1),; in which arrangement the free end regions (2, 3) of the two base walls (8, 9), which are arranged on either side of the slotted opening (11) of the guide-rail profile (1) and are each designed in mirror-image arrangement towards the vertical longitudinal centre plane (E) of the guide-rail profile (1), form guiding surfaces (2a, 3a) for each of the two guide rollers (6, 7), at least the regions of the profile base walls (8, 9) which form the guiding surfaces (2a, 3a) for the guide rollers (6, 7) in each case running obliquely upwards and inwards towards one another at an angle ( $\alpha$ ) with respect to the horizontal plane (H) of the profile base walls (8, 9), and the axle support (10) being a crosspiece (10) which extends transversely with respect to the running direction of the guide rail (1) and whose ends are provided with rotating shafts (4, 5) for the two guide rollers (6, 7),; the axes (A', A'') of which in each case form a mirror image with respect to the vertical longitudinal centre plane (E) of the guide-rail profile (1) and run downwards and outwards at an angle ( $\alpha$ ) with respect to the horizontal plane (H), each pair of axes being angled so as to run parallel to their respective guiding surfaces (2a, 3a).



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Hand overhead conveyor for in-plant hanging promotion in the clothing industry

The invention refers to a hand overhead conveyor for in-plant hanging promotion in the clothing industry in accordance with the preamble of the claim 1.

A hand overhead conveyor of this type results for example from a folder "helmet/group 14" of the firm Hespe & Woelm GmbH & Co. KG, Hasselbecker roadway 4, 5628 Hohenhausen. Here the rollers are coaxial at axle bearings mounted movable along the box shaped rail profile. The guide of the two running wheels made by lateral in each case beside the running surface for both running wheels the planned, upward directed slopes in the box profile, parallel to the running rail.

The two running wheels exhibit a relative large diameter and take almost the entire light height of the rail profile. Thereby is ensured that the two rollers between the two upward directed slopes are relative safe in rail longitudinal direction guided. Adverse one is however the fact that both the rollers, and the running rails are subjected to a significant wear by continuous friction and that at so stored and led rollers of fixed carriages because of the friction, in particular within the range of rail curves, only with increased energy expenditure can be moved. Furthermore is adverse that itself with the subject-matter "HELMET" specified above - of the folder the support member from axle bearing and running wheels only at the beginning and/or. at the end or at a particular location to remove leaves the same. Finally are still adverse that it can occur with a hand overhead conveyor in this embodiment that - if the running surfaces for the camp roles for easier moving the same lubricated become - lubricants or with lubricant contaminated dust from the slot opening formed between the two running surfaces to garments located under it to fall down and these to contaminate be able.

It is object of the invention to create a hand overhead conveyor that initially mentioned type with which both the running rail and the castor arrangement movable in their longitudinal direction are so constituted that a support member simple, safer and itself prolonged-central in the running rail centering on their running surfaces storable, formed from axle bearing and rollers, at arbitrary location from the running rail more removable and/or. in this are more insertable.

This object becomes dissolved according to invention by the subject-matters of the claim 1 and/or the claim 16. Inventive developments and advantageous embodiments result from the Unteransprüchen 2 to 15 and/or 17 to 28.

By the inclination of the axes of rotation of the two rollers of the hand overhead conveyor according to invention the subsequent advantages become achieved in the comparison the known hand overhead conveyor:

Frictional forces and thus friction wear causative a longitudinal guide of the rollers there the longitudinal guide of the entire unit from axle bearing and rollers bottom utilization of the gravity does not arise alone by the autocentering acting, automatic prolonged-central alignment the same



made with the subject-matter of the application. Both rollers have - in each case in opposite direction - the inclination to want to roll on their outward in each case and oblique downward longitudinal running surface oblique downward. This is natural therefore not possible, because both rollers are connected with one another by the axle bearing arranged between them, which holds them in the running rail prolonged-central in the balance.

An other advantage consists of the fact that from axle bearing and both at this fixed rollers formed support member as whole at any location of the running rail remote can become, to which it only a little raised, around approximately 90 DEG around the vertical longitudinal axis of the support ranging rotated and subsequent to be taken out downward needs.

Finally an other advantage consists with in the bearing surface arrangement with the features characterized in the claims 1 to 15 of the fact that the running surfaces lubricating lubricant and/or. thus contaminated dust not by the slot opening on garments, located arranged between them, under it od. such. falls, but in of it opposite direction in each case into the channel formed between the running surface and profile side wall and/or. Recess to fall can. The this lateral in each case slot opening formed, in each case with distance below the plane recesses of the running rail located serve the slot opening as it were as dirt receptacles. From this the dirt no more accumulated there cannot fall down on the bottom slot opening of located garments.

▲ top In this way with garments of vollbehängener carriages with simple handgrips from the running rail remote can be also hung up or into these.

Other features, details, advantages and application possibilities result from subsequent description of preferable embodiments of the invention, how them are more recognizable from the drawing. Show:

Fig.1 a perspective view of a first embodiment of a hand overhead conveyor according to the invention and

Fig.2 a perspective view of a second embodiment of a hand overhead conveyor according to the invention.

In accordance with Fig. 1 covers the first embodiment of the hand overhead conveyor according to invention a portion of a box shaped rail profile 1, which essentially exhibits a profile cover wall 15, two lateral the same arranged, downward rectangular angled profile side walls 16 and 17 as well as two to the prolonged-central arranged vertical longitudinal center plane E rectangular inward angled, one on the other tapered, in the bending lines 21 and 22 angled profile soil walls 8.9. The free end regions 2.3 of the profile soil walls 8 and/or. 9 forms in each case a running surface 2a and/or. 3a for rollers 6 and/or. 7 and is in each case along a bending line 23 and/or. 24 around an angle  $\alpha$  to the horizontal plane H of the profile soil walls 8 and/or. 9 upward angled oblique to the vertical longitudinal center plane E.

The two end edges 13, 14 of the two end regions 2.3 form a prolonged-central longitudinal slot opening 11, which exhibits a width B between itself.

In deviation of the foregoing described form of the rail profile according to invention this the subsequent other form can exhibit:

As in Fig. 1 dashed shown is, can the rail profile 1 in vertical direction with downward longer profile side walls 16a, 17a be provided, in each case around the angle the  $\alpha$  along the bending lines 27.28 inward profile soil walls 8a, 9a bent to the longitudinal center plane E follow. These wise again end regions 2.3 up, those the running surfaces 2a, 3a for the rollers 6.7 form. This profile is to be manufactured easier, because at each profile side the bend of a profile edge is void. It caused however a higher materials consumption, as arises from the comparison both described and in the drawing represented rail profiles.

Inside the essentially box shaped formed profile of the running rail 1 is along the same movable support member 25 to the receptacle of material to be conveyed stored. The support member 25 exhibits itself as axle bearing a serving, in operation position transverse to the longitudinal extension of the rail profile 1 extending cross beam 10. At its two ends the cross beam is 10 in



each case with a rotary shaft 4 and/or. 5, preferably a ball bearing, to the receptacle over a roller 6 bzw. 7 provide. The axes A min, A seconds of the rotary shafts 4.5 are of the cross beam 10 downward inclined arranged, around the equal angle  $\alpha$ , as bending that the running surface 2a, 3a of supporting end regions 2,3. The axes A min, A seconds run thus in each case to the corresponding running surface 2a, 3a parallel. In this way is ensured that the rollers can mount and in their longitudinal direction unreel 6.7 with their full Rollenbreite R on the running surface 2.3. As results from the drawing, are here neither on the one nor on the other side of the rollers 6.7 any additional prolonged control devices provided. The prolonged-central alignment of the rollers 6.7 arises as a result of the centering action formed of the according to invention rail/castor system automatically, how subsequent performed becomes.

After the invention and, is the light distance Vs between the two free edges 13, 14 of the two end regions 2.3 and the profile cover wall is as more recognizable from the drawing 15 at least as large, as the largest distance front spars between the upper edge of the cross beam 10 or the highest point of the inner edge 6i, 7i of the rollers 6.7 and the deepest point of the outer edge 6a, 7a of the rollers 6,7, dimensioned with small clearance.

Besides the light width B of the slot opening 11 is at least so large dimensioned with small clearance, as the diameter amounts to D of the two rollers 6.7.

In combination thereby the clearance WG of the rail profile is 1 at least so large dimensioned with small clearance, as the largest width stock measured over the two rollers 6.7 amounts to.

As is more recognizable from the preferable embodiment of the invention represented in the drawing, the slot opening is 11 prolonged-central vertical interspersing support ranging 12 fixedly mounted downward at the cross beam 10. A support member 25 formed from a cross beam 10, two rollers 6.7 and a support ranging 12 a material to be conveyed photograph mechanism forms and/or together with at least (here not represented) an other similar formed support member 25 as well as a lengthening rising up cross-beam 18 arranged between the support members 25. a so called Trolley and/or. Inertial car 26.

The two ends of the lengthening rising up cross-beam 18 are to the formation of a Trolleys and/or. Inertial car 26 support ranging 12 articulated in each case mounted, so that each support member 25 at any location can be taken out of the rail profile 1 or hung up into this, independent of the current position of the inertial car 26, supporting to that at least two it, as subsequent still described will become. The articulated arrangement of the lengthening rising up cross-beam 18 of the inertial car 26 possible its problem-free driving through of rail curves.

In the preferable embodiment of the invention shown here the lengthening rising up cross-beam is 18 tubular formed and exhibits at its two ends it transverse to its longitudinal axis and central interspersing bore 19 circular in the cross section. The bore 19 is in operation position of the support ranging 12 penetrated. The support ranging 12 is for its part provided with (here not represented) a bore, who is in operation position of a security element 20 penetrated. The security element 20 secures the lengthening rising up cross-beam 18 at the support ranging 12 and can from a screw, a split pin or such. exist.

By the inventive arrangement of the running surfaces 2a, 3a for the rollers 6.7 centered itself each support member 25 regarding the longitudinal center plane E of the running rail 1 due to the deep below the running surfaces 2a, 3a of located entire emphasis P of the support member 25 without additional prolonged control devices permanent automatically. The support ranging 12 in the slot opening 11 of the running rail always maintains 1 its prolonged-central position. The risk of "derailing" the rollers 6.7 of a support member 25 from the running rail 1 is perfect excluded.

(From cross beam 10, rollers 6.7 and support ranging 12 formed) a support member 25 of the hand overhead conveyor according to the invention can - as subsequent described - taken out at any location of the running rail 1 of this and/or. into these to be hung up:

The removal of a support member 25 from the running rail 1 the support ranging 12 of the support member 25 from its operation position becomes first far around at least the height VD raised, so that the deepest points of the outer edges 6a, 7a of the rollers 6.7 slight horizontal plane K



contained above that the two free longitudinal edges 13.14 to lie. Subsequent one becomes the support ranging 12 around its axis A around approximately 90 DEG rotated, whereby the rollers become 6.7 over the slot opening 11 pivoted. Finally the support ranging becomes 12 downward lowered, whereby the cross beam 10 and at these mounted rollers 6.7 with small clearance by the slot opening 11 of the running rail 1 are through downward lead outable. Meanwhile the lengthening rising up cross-beam can remain 18 with the support ranging 12 of the support member 25 because of its articulated connection with this connected.

The introduction of a support member 25 into the rail profile 1 made in reverse order: First the support ranging 12 of the support member 25 which can be hung up at the running rail 1 is advanced from downside to the running rail 1, whereby the cross beam is 10 so positioned that the axes A min, A roll second the course 6.7 in the longitudinal center plane E lie. After perfect introduction of the support member 25 by the slot opening 11 vertical upward the support ranging 12 and around the amount VD so far lowered finally becomes, until those the rollers 6.7 on its respective running surfaces 2a, rotated around its axis A around 90 DEG, 3a to mount. Also when using a support member 25 this does not need from one already with material to be conveyed, for example with garments to become provided lengthening rising up cross-beam 18 separate there latter - like foregoing described - 12 connected articulated with the support ranging is.

The support member 25 of the hand overhead conveyor according to invention can become with both previously mentioned, different formed forms of the rail profile 1 used (that is, both with a rail profile with the walls 15.16, 17.8.9 and with a rail profile with the walls 15,16a, 17a, 8a, 9a).

In accordance with Fig. 2 the second embodiment of the hand overhead conveyor according to invention a portion of a box shaped rail profile 51, that covers essentially a profile cover wall 65, two at their side edges tied up, downward rectangular angled profile side walls 66 and 67 as well as two profile soil walls 58,59 tied up at their bottom edges. The profile soil walls 58.59 are downward angled to the prolonged-central arranged vertical Längsmitelebene E around an angle ss to the horizontal plane H in bending lines 71 and 72 inward and, whereby they run in their end regions 52.53 aufeinanderzu. The profile soil walls 58.59 can be tied up in an other embodiment of the invention of also immediate at the profile cover wall 65, like this in Fig. 2 dashed shown is, whereby the profile soil walls form 58.59 to the profile cover wall 65 an angle in each case ss. Vicinity of the free end regions 52.53 of the profile soil walls 58 and/or. 59 points the latters at their to the box profile interior of facing side in each case one around an angle ss to the horizontal plane H inward and oblique downward angled running surface 52a and/or. 53a for rollers 56 and/or. 57 up.

The two end edges 63, 64 of the two end regions 52.53 form a prolonged-central longitudinal slot opening 61, which exhibits a light width F between itself.

At the two end regions 52.53 according to the invention centre holists can be 80.82 arranged, which limit the slot opening 61 and exhibit a mutual distance F.

Inside the essentially box shaped formed profile of the running rail 51 is along the same movable support member 75 to the receptacle of material to be conveyed stored. The support member 75 exhibits itself as axle bearing a serving, transverse to the longitudinal extension of the rail profile 51 extending cross beam 60. At its two ends the cross beam is 60 in each case with a rotary shaft 54 and/or. 55, preferably a ball bearing, to the receptacle ever a roller 56 and/or. 57 provide. The axes B min, B seconds of the rotary shafts 54.55 are of the cross beam 60 upward inclined arranged, around the equal angle ss inclined, as bending that the running surface 52a, 53a of supporting end regions 52,53. The axes B min, B seconds run thus in each case to the corresponding running surface 52a, 53a parallel. In this way is ensured that the rollers can mount and in their longitudinal direction unreel 56.57 with their full Rollenbreite R on the running surface 52.53. As itself from Fig. 2, is here neither on the one nor on the other side of the rollers 56.57 any additional prolonged control devices provided results in. The prolonged-central alignment of the rollers 56.57 arises as a result of the centering action formed of the according to invention rail/castor system automatically, how subsequent performed becomes.

The light width F of the slot opening 61 is at least as large, as the diameter D of the two rollers



56,57 dimensioned with small clearance.

In combination thereby the clearance c1 of the rail profile is 51 at least so large dimensioned with small clearance, as the largest width K2 measured over the two rollers 56.57 amounts to.

As from Fig. 2 is more recognizable, is at the cross beam 60 the slot opening 61 a prolonged-central vertical downward interspersing support ranging 62 fixedly mounted. A support member 75 formed from a cross beam 60, two rollers 56.57 and a support ranging 62 a material to be conveyed photograph mechanism forms and/or together with at least (here not represented) an other similar formed support member 75 as well as a lengthening rising up cross-beam 68 arranged between the support members 75. a so called Trolley and/or. Inertial car.

The two ends of the lengthening rising up cross-beam 68 are to the formation of a Trolleys and/or. Inertial car to that at least two it supporting support ranging 62 articulated in each case mounted, so that each support member 75 at any location of the rail profile 51 can be taken out or hung up into this, independent of the current position of the inertial car, as subsequent still described will become. The articulated arrangement of the lengthening rising up cross-beam 68 of the inertial car possible its problem-free driving through of rail curves.

In the preferable embodiment of the invention shown here the lengthening rising up cross-beam is 68 tubular formed and exhibits at its two ends it transverse to its longitudinal axis and central interspersing bore 69 circular in the cross section. The bore 69 is in operation position of the support ranging 62 penetrated. The support ranging 62 is for its part provided with (here not represented) a bore, who is in operation position of a security element 70 penetrated. The security element 70 secures the lengthening rising up cross-beam 68 at the support ranging 62 and can from a screw, a split pin or such. exist.

By the inventive arrangement of the running surfaces 52a, 53a for the rollers 56.57 centered itself each support member 75 regarding the longitudinal center plane E of the running rail 51 due to the deep below the running surfaces 52a, 53a of located entire emphasis P of the support member 75 without additional prolonged control devices permanent automatically. The support ranging 62 in the slot opening 61 of the running rail 51 always maintains its prolonged-central position. The risk of "derailing" the rollers 56.57 of a support member 75 from the running rail 51 is perfect excluded.

(From cross beam 60, rollers 56.57 and support ranging 62 formed) a support member 75 of the hand overhead conveyor according to the invention can - as subsequent described - taken out at any location of the running rail 51 of this and/or. into these to be hung up:

The removal of a support member 75 from the running rail 51 the support ranging 62 of the support member 75 around its axis A becomes around approximately 90 DEG rotated, whereby the rollers become 56.57 61 pivoted over the slot opening. Finally the support ranging becomes 62 downward lowered, whereby the cross beam 60 and at these mounted rollers 56.57 with small clearance by the slot opening 61 of the running rail 51 are through downward lead outable. Meanwhile the lengthening rising up cross-beam can remain 68 with the support ranging 62 of the support member 75 because of its articulated connection with this connected.

The introduction of a support member 75 into the rail profile 51 made in reverse order: First the support ranging 62 of the support member 75 from downside to the running rail 51 which can be hung up at the running rail 51 is advanced, whereby the cross beam is 60 so positioned that the axes B min, B lie seconds of the rollers 56.57 in the longitudinal center plane E. After perfect introduction of the support member 75 by the slot opening 61 vertical upward finally the support ranging becomes 62 downward lowered, until the rollers 56.57 on its respective running surfaces 52a, rotated, around its axis A around 90 DEG and, 53a to mount. Also when using a support member 75 this does not need from one already with material to be conveyed, for example with garments to become provided lengthening rising up cross-beam 68 separate there this - like foregoing described - with the support ranging 62 articulated connected is.